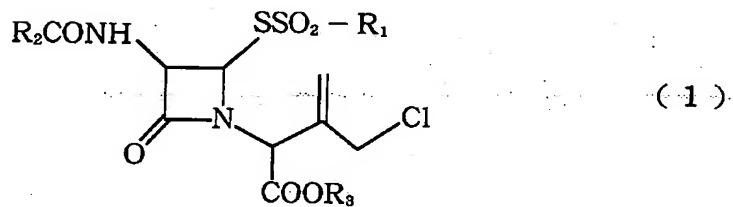


WHAT IS CLAIMED IS:

1. A process for preparing a crystalline 3-chloromethyl-3-cephem derivative, comprising the reaction step of performing a reaction of a chlorinated azetidinone derivative with an alcoholate in a solvent containing at least one of alcohols at a pH of 8 or less,

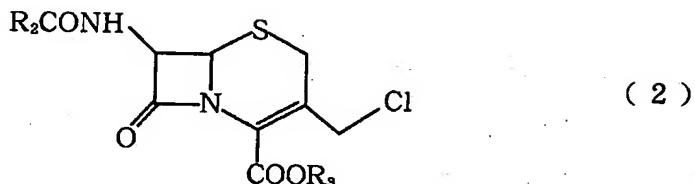
wherein the chlorinated azetidinone derivative is expressed by Chemical Formula (1):



where  $R_1$  represents one selected from the group consisting of substituted and unsubstituted aryl groups and substituted and unsubstituted heterocyclic residues, and  $R_2$  and  $R_3$  each represent one selected from the group consisting of substituted and unsubstituted aromatic hydrocarbon groups, and

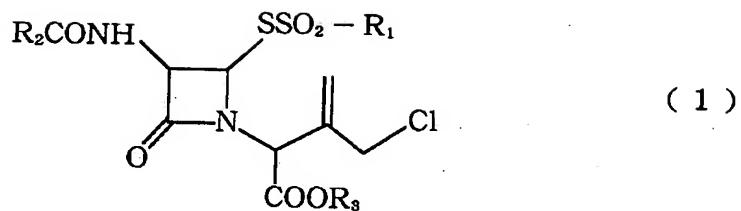
wherein the 3-chloromethyl-3-cephem derivative is

expressed by Chemical Formula (2):



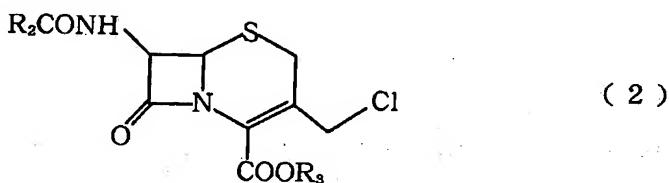
where  $R_2$  and  $R_3$  each represent one selected from the group consisting of substituted and unsubstituted aromatic hydrocarbon groups.

2. A process for preparing a crystalline 3-chloromethyl-3-cephem derivative, comprising the reaction step of performing a reaction of a chlorinated azetidinone derivative with an alcoholate in a solvent containing at least one of alcohols and an ether at a pH of 8 or less, wherein the chlorinated azetidinone derivative is expressed by Chemical Formula (1):



where  $R_1$  represents one selected from the group consisting of substituted and unsubstituted aryl groups and substituted and unsubstituted heterocyclic residues, and  $R_2$  and  $R_3$  each represent one selected from the group consisting of substituted and unsubstituted aromatic hydrocarbon groups, and

wherein the 3-chloromethyl-3-cephem derivative is expressed by Chemical Formula (2):



where  $R_2$  and  $R_3$  each represent one selected from the group consisting of substituted and unsubstituted aromatic hydrocarbon groups.

3. The process according to Claim 1 or 2, wherein the reaction step is performed by adding solution A containing the chlorinated azetidinone derivative and solution B containing the alcoholate into solution C containing at least one of the alcohols, and wherein the chlorinated azetidinone derivative is dissolved in a solvent containing an ether, and the alcoholate is dissolved in a solvent containing at least one of the alcohols.

4. The process according to Claim 3, wherein part of solution A in an amount equivalent to 5 to 30 percent on a mole basis of the entire amount of chlorinated azetidinone derivative involved in the reaction is added to solution C, and then the rest of solution A and solution B are simultaneously added to solution C.

5. The process according to any one of Claims 1 to 4, wherein 0.8 to 1.5 mol of the alcoholate is allowed to react relative to 1 mol of the chlorinated azetidinone derivative.

6. The process according to any one of Claims 1 to 4,

wherein the alcohols are methanol and ethanol.

7. The process according to any one of Claims 2 to 4, wherein the ether is dioxane.

8. The process according to any one of Claims 1 to 4, wherein the alcoholate is one of sodium methylate and sodium ethylate.

9. The process according to any one of Claims 1 to 8, wherein the reaction is performed at a temperature of 5°C or less.

10. The process according to Claim 3 or 4, wherein the ether is dioxane, and the solvent containing the ether, dissolving the chlorinated azetidinone derivative is a mixed solvent of dioxane and an alcohol.

11. The process according to Claim 3 or 4, wherein the solvent containing at least one of the alcohols, dissolving the alcoholate is the at least one of the alcohols.

12. The process according to Claim 3 or 4, wherein solution C further contains dioxane.

13. The process according to Claim 3 to 12, wherein  
solution A and solution B are added by dripping.

14. The process according to any one of Claims 1 to 13,  
wherein the reaction is performed in the absence of water.